REMARKS

Claims 1-209 were previously pending in the application. Claims 1-209 stand rejected pursuant to 35 U.S.C. § 103(a) as being obvious over Anaya et al., U.S. Patent No. 7,082,410 (Anaya) in view of Higgins, U.S. Patent No. 5,270,922. Favorable reconsideration is requested in view of the claim amendments and following remarks.

Applicant thanks the Examiner for the in-person interview held on December 12, 2007, and the follow-up telephone interview held on January 23, 2008. The claims have been amended pursuant to the discussions with the Examiner. Most of the previous independent claims have been canceled and substituted with new independent claims as follows:

Canceled Independent Claim	Substituted Independent Claim
1	210
15	211
32	212
42	213
53	214
65	215
78	216
84	217
90	218
91	219
94	220
108	221
125	222
135	223
146	224
158	225
171	226
177	227
183	228
184	229

Dependent claims 206 and 207 also have been canceled. For consistency, many of the dependent claims have been amended. In addition, the specification has

been amended to correct a minor error found by Applicant during preparation of this reply.

Accordingly, claims 2-14, 16-31, 33-41, 43-52, 54-64, 66-77, 79-83, 85-89, 92-93, 95-107, 109-124, 126-134, 136-145, 147-157, 159-170, 172-176, 179-182, 185-205, and 208- 229 remain pending in the application upon entry of these amendments. Applicant respectfully requests favorable reconsideration in view of the following remarks.

I. Overview of the Inventive Concept

Applicant's invention provides novel systems and methods to aid securities traders in taking advantage of profitable opportunities that might otherwise be missed.

Traders of securities analyze market data for indications that a given security should be bought or sold. As described in the Background section of the Application, market makers seeking to sell a security submit offers or "asks" with prices at which they will sell the security, while market makers seeking to buy a security submit "bids" with prices at which they will buy the security. At any given time, there exists a lowest ask price and a highest bid price, referred to in the art as the "inside ask" and "inside bid" respectively. The range from the inside ask to the inside bid is referred to as the "inside market".

As understood in the art, a "market maker" is an individual or a corporation allowed by the Securities and Exchange Commission (SEC) to register individual securities for trading and makes a market in the issue. As further understood in the art, the term "market maker" includes an "order entry firm", which is an individual or corporation allowed by the SEC to register securities for trading but is not making a market in an issue that they have an order.

The collection and publishing of stock market transactional information is nothing new. It has been done electronically since the invention of the stock ticker tape. Information relied upon by the market makers to set their bids and asks, as termed in the art, include "level 1 information" and "level 2 information". Level 1 information is the conventional ticker tape information, which includes such items, on a symbol by symbol

basis, as the last trade price with its associated trade size, current daily trade volume, daily high and low prices, and various other statistics. These items of information typically are published by the major market exchanges and various news services. As used in the art, level 1 information also includes the inside (lowest) ask and the inside (highest) bid. With the exception of the inside bid and inside ask, all of the other level 1 information flow is transactional in nature and reports trades and other information about the security.

The stock markets are auction markets in which stock security traders, through market makers, compete with each other in the buying and selling of stocks. In this vein, in addition to level 1 information, there exists level 2 information, which includes information as to all the bids and all the asks being made by the various market makers. In particular, level 2 information includes each market maker having at least one open (or active) bid or ask, the time the open bid or ask was made, the volume of the open bid or ask, and the price. (See Application at page 1, line 26 to page 2, line 17.)

The Applicant's methods and systems transform certain level 1 and/or ***level 2 information*** to identify relationships and interactions among the actions of market makers. This is carried out across a plurality of securities. **The inventive subject matter of the present application is directed to systems and related methods for observing the activity of market makers with the specific aim of generating indicators of temporary, short-term imbalances in market maker activity for one or more securities.**

Knowing if there exists such imbalances in market maker activity for a security may assist a trader in deciding when to buy or sell the security. As used by the Applicant, an imbalance in individual or collective market maker activity represents an upward or downward pressure upon the price of a security that could lead to a price change in a particular security. (See Application at page 11, lines 1-7.) Although security prices cannot be predicted with certainty, an upward imbalance tends to predict that a security price will rise, which would indicate a favorable opportunity to buy the

security. In contrast, a downward imbalance tends to predict that a security price will fall, which would indicate a favorable opportunity to sell the security.

The claimed systems and methods allow a trader to keep up with market dynamics in a timely fashion while highlighting buying and selling opportunities before the opportunities pass. The market is constantly in flux, but the claimed methods and systems allow the trader to respond to market dynamics in a timely enough manner to take advantage of market opportunities that, without the claimed methods and systems, would likely be missed.

Prior to the claimed system and methods, the conventional approach to monitoring market maker activity was to collect all of the market maker information for a particular stock and to display the information for that particular stock in a table on the computer screen. In order to see market maker information for a different stock, a different table had to be opened by the user. On an active stock, such as any large Fortune 500 company or similar, there could be upwards of 200 hundred different bids and 200 different asks at any one time. The stream of level 2 information is currently between 6 and 10 times larger than the stream of level 1 information. **Nothing in the prior art teaches how to simultaneously monitor up to all of the market maker activity taking place in up to all of the securities on an exchange, to create indicators of temporary imbalances in market maker activity as to one or more securities, and then to identify previously unknown market maker derived relationships from those indicators.**

As explained in the Background section of the present application, to predict price movement in a security, traders conventionally observe market maker activity using raw level 1 and level 2 data. Prior to the Applicant's invention, traders had to mentally assimilate the raw level 1 and level 2 data to try to predict price movement. This is extraordinarily difficult and is mentally taxing on the trader. Also, even experienced traders are only able to follow the activity of a handful of securities at a time. Without the power of the claimed methods and systems, trying to mentally identify indicators of market opportunities would likely be an impossible task.

The Applicant sets forth specific imbalance indicators relating to market maker activity that are not disclosed or reasonably suggested by the prior art. The analysis techniques may be applied in a timely and opportunistic manner across a large number securities and market makers so that a user can be made aware of imbalances in market maker activity for securities that are not being closely observed. With hundreds of level 1 and level 2 data points that are updated each second for an exchange such as the NASDAQ, the claimed systems and methods allow traders to be more fully aware of the behavior of the market. This knowledge may lead to the placement of more opportune buy and sell orders that could not otherwise be accomplished without the claimed systems and methods.

As shown below, the references relied upon the by Examiner, whether viewed alone or in combination, do not disclose or render obvious the inventive features of the claimed invention. Accordingly, the claim rejections should be withdrawn.

II. General Arguments Applicable To The Claims

Based on the above, all but two of the independent claims (including claims 187, 208, 209, 210-215, 217-225, and 227-229)[1] recite at least the following features:

> (1) receiving a dynamically updated data stream containing level 2 data relating to bids and asks for a plurality of securities, and
> (2) deriving an indication of a temporary imbalance in market maker activity for at least one security.

The claims differ in part with respect to the specific nature of the derived imbalance indicators recited in each claim grouping of an independent claim and its related dependent claims. The details of the various imbalance indicators are discussed below. At the outset, however, Anaya and Higgins, whether alone or in combination, do not disclose even the two more general features identified above.

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[1] Independent claims 216 and 226 are exceptions insofar as they do not specifically recite the second feature.

Anaya discloses the creation of a central line handler through which the NASDAQ manages the collection, storage, and publication of its data. Anaya is concerned with monitoring the market for unusual conditions (see, e.g., col. 5, line 66 to col. 6, line 3). The information analyzed in Anaya, however, *is limited to level 1 data and excludes level 2 data*. For this reason, Anaya lacks the first claim feature identified above.

Anaya's entire disclosure is directed to a fault resistant system for combining market data messages from a plurality of data feed lines. The system monitors the data for errors and potential errors, corrects the errors so they can be removed from the data stream, and publishes and stores the corrections. Anaya only makes reference to the display of data on its own internal workstations, and not to systems accessed by the actual data subscribers. There is no disclosure of how any of the data is used or disseminated into the public domain. Anaya merely takes data that is made available from the various market participants and combines the data into a single data stream by sequentially numbering each received message. From the combined data stream, Anaya's system collects the market maker activity for a stock (and only on a stock by stock basis) for display for NASDAQ's internal data analysts and data originators (see Fig 37), not for its data subscribers. As such, Anaya does not compare collective market maker activity across a plurality of securities, and nor does Anaya combine market maker activity from plural securities.

Anaya is mainly focused on describing their redundant data server architecture for combining data, checking it for errors, and alerting analysts at NASDAQ and their data providers of potential errors. Those error alerts are investigated, and either confirmed as errors and corrected, or they are confirmed as not in error. Then the data stream can be relayed to provide a standard display to subscribers, even in the event of a complete system crash.

Anaya does not teach or reasonably suggest the specific indicators of upward or downward imbalances in market maker activity for a security based on dynamic market maker activity, as have been particularly pointed out and distinctly claimed in the application. Nor does Anaya teach or suggest analyzing the inter-related collective and

coactive behavior of market makers across plural securities to create timely indicators of market opportunities.

Some terms used by Anaya may seem similarly sounding to terms used by the Applicant, but an analysis of the specific use of such terms reveals the distinctions between the teachings of Anaya and the claimed invention. For instance, Anaya uses the term "analysis of different market events to detect some alert conditions" (Anaya at col. 10, lines 7-8) to describe the searching of the data stream for errors so that market participants may be alerted to mistakes they may have made in entering the data. NASDAQ may then hold the release of the data until such time as the error has been checked by a human assigned that that task. Anaya, however, nowhere discloses the derivation of specific indicators of imbalances in market maker activity relating to a security.

The alerts described by Anaya are presented to the internal NASDAQ analysts, who check the source of the alert in order to ensure accurate market information is relayed to NASDAQ data feed subscribers (column 28, line 47 to column 30 line 7). No discussion of relaying these alerts to subscribers is presented. Anaya states: "To detect alert conditions, the market monitoring system 10 analyzes data such as quotations and indices, options/derivative prices, trade prices and quantities, trading halts, and price data on initial public offerings (IPO's)." (Anaya at col. 6, lines 3-7.) As understood in art, such information is only level 1 data. There is no mention in Anaya of monitoring level 2 data generally; nor specifically to monitoring open bids and open asks of the various market makers.

Of the alert conditions monitored by the process of Anaya, certain alerts may be specifically tied to inside bids and inside asks. This may be why the Examiner has concluded, though erroneously, that Anaya discloses the first claim feature identified above. Even these alerts, however, do not invoke the monitoring of level 2 data, and do not provide for furnishing the level 2 data to either the data originators or subscribers.

For example, one such alert is the Locked/Crossed (L/C) market alert. As stated in Anaya: "A locked market occurs when the <u>inside ask and bid quotes</u> for a security are equal. A crossed market occurs when the <u>inside bid</u> quote is greater than the <u>inside</u>

ask quote for a security." (Col. 22, lines 9-14, emphasis added.) As stated above, those skilled in the art understand the *inside* bid and *inside* ask quotes to be part of the level 1 information. Thus, even as to the L/C alert, Anaya does not rely on a data stream including the actual level 2 information.

Another alert based on the inside bid or inside ask quote is referred to in Anaya as a Quote/Trade Comparison (QTC) alert. "A trade whose price is unreasonably related to the <u>inside quotes</u> for a traded security generates a QTC alert." (Col. 23, lines 32-33, emphasis added.) Accordingly, similar to the L/C alert, the QTC alert is based on the inside quotes, or level 1 information. Again, Anaya does not rely on level 2 information.

Certain deviations from the inside bid or inside ask quotes may trigger an alert within a class of alerts generally defined in Anaya as Unusual Market Activity (UMA) alerts. Among other situations, a UMA alert may be triggered by rapid movement of quotes during a trading session. "Quote movement may be detected from the <u>inside bid and/or inside ask quotes</u>. The movement also may be detected by a large standard deviation between quotes for one security." This includes "[u]nusual spreads between ask and bid inside quotes for a security." (Col. 27, lines 52-57.) Accordingly, similar to the L/C and QTC alerts, the relevant UMA alerts are based on the inside quotes, or level 1 information. Again, Anaya does not rely on level 2 information.

The Examiner cites broadly to Figs. 4, 6, and 37 as reciting the claim feature of receiving a dynamically updated data stream containing level 1 and level 2 data relating to a plurality of securities. A review of these figures, however, reveals that consistent with the above, at most only the inside bid and inside ask quotes are indicated, which is level 1 information. More importantly, subscribers have no control over setting or displaying these alerts. The data presented by Anaya in Fig. 37 shows data in the format it is presented to the NASDAQ's internal data stream analysts. **In fact, subscribers to Anaya's systems will never be made aware of any of the alerts Anaya discloses, because they are only generated for internal purposes of ensuring correct data provision.** Fig. 37 represents nothing more than the consolidation of data from the error checking analysis on one screen. The alerts do not

aid stock security traders in recognizing favorable buying and selling opportunities because the alerts are never even relayed to the subscribers. Since the data displayed by Anaya is just news and pricing information that may be in error, it follows that the claimed subject matter is not disclosed by Anaya.

Accordingly, a transition to additionally furnishing level 2 information would not be a straight-forward extension of Anaya. Level 2 information is not necessary to detect the alert conditions described in Anaya, and given the vast amount of level 2 data available, the furnishing of level 2 information would likely, and unnecessarily, overburden a system used to implement Anaya's teachings.

For at least these reasons, Anaya does not disclose the claim feature of receiving a dynamically updated data stream containing *level 2* data relating to a plurality of securities. In addition, based on the Examiner's statement that Anaya does not disclose previously claimed indications of "price pressure", the Examiner would also seem to recognize that Anaya does not disclose the second feature identified above -- deriving an indication of a temporary imbalance in market maker activity for a security. For this second feature, the Examiner may attempt to rely on the disclosure of Higgins as done in the Office Action. A combination of Anaya and Higgins, however, does not result in or disclose the claimed invention.

Higgins broadly relates to distributing, processing, and displaying financial market data and news. Higgins provides improvements on the state of the display of level 1 market data on a computer monitor around the time the application was filed in the late 1980s to early 1990s. Higgins' invention was designed to provide up-to-date stock quotes for use by thousands of brokers working for a specific brokerage company. Higgins does not go anywhere beyond the provision of such raw level 1 market data.

Similar to Anaya, therefore, Higgins is concerned with only level 1 information. Higgins provides for furnishing "[s]tock trade executions, quotations and other ticker plant information". (Col. 1, lines 37-39, emphasis added.) The "ticker plant information" refers to the well-known "stock ticker" containing stock prices and quotations provided by the major stock exchanges and news services. (See, e.g., col. 2, lines 42-57 and col. 3, line 66 to col. 4, line 20.) Those skilled in the art would understand such

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information to comprise only level 1 information. Higgins makes no reference to monitoring level 2 data generally, nor specifically to monitoring open bids and open asks of the various market makers for the specific purpose of deriving indicators of temporary imbalances in market maker activity for security.

Indeed, Higgins in fact does not disclose analyzing the level 2 data stream and deriving indicators of temporary imbalances in market maker activity for a security. Although Higgins refers to "derivative data", the derivative data of Higgins is not comparable to the claimed subject matter. Higgins states: "Various derivative tasks, such as price security limit alerts and customized, selective ticker displays, are user programmable and are actuated by the work station data base." (Col. 1, lines 51-54.) Thus, a user may customize the manner by which the level 1 information is displayed or provided. This user customization is not comparable to the automatic manipulation of the data stream provided by the claimed invention. Additionally, there is no indication in Higgins that any of the derivative tasks analyze data to derive an indicator of temporary imbalances in market maker activity for a security. None of the derivative tasks in Higgins can be understood as bearing on such imbalances.

The Examiner may consider a "price security limit", referenced in Higgins, as an indicator of temporary imbalances in market maker activity for a security. Such a conclusion would not be correct. As described in Higgins, a price limit is simply a user-established price at which an investor may buy or sell a stock: "Upside and downside limits are often used by brokers and investors as buy or sell conditions and are of interest both to the broker and to his customers owning those securities." (Col. 5, lines. 11-15; see also col. 9, lines 3-16.) Those skilled in the art would understand that such price limits are fairly arbitrary and by themselves *not* indicative of any temporary imbalances in market maker activity.

For example, suppose a broker sets a price limit to buy or sell a stock at ten dollars. If the stock price falls to ten dollars from a higher price, the stock may be in a downward trend and poised to fall further. Alternatively, the stock price may be at a "bounce back" point and poised to rise. Similarly, if the stock rises to the limit price from a lower price, the stock may be in an upward trend and poised to go higher, or

alternatively at a turnaround point and poised to turn lower. <u>Regardless, the limit price in isolation is not indicative of which imbalance in price trending, if any, is present.</u> Limit prices also may be used to lock in profits or prevent losses beyond a certain amount. An investor, for personal financial reasons, may be satisfied with a particular profit or gain, or wish to avoid a large loss. For example, if the investor buys a stock at ten dollars, the investor may set an automatic sell price of eight dollars on the downside and twelve dollars on the upside. In this manner, an investor will lock in a twenty-percent profit and avoid a greater than twenty-percent loss. As in the previous example, <u>the limit prices offer no indication as to the presence of any imbalances in market maker activity</u>. The price limits merely represent fairly arbitrary decisions by the broker or investor. In a general sense, one skilled in the art would understand that upside and downside limit prices, set by brokers and investors for a variety of reasons, bear no relation to temporary imbalances resulting from the bid/ask dynamics of market maker activity for a security.

Contrast the limit prices of Higgins with the derived indicators in the claimed invention. For example, new independent claim 210 (substituted for canceled claim 1) recites that the derived indicator includes "summing the volume of all active market makers' bids" associated with predetermined securities and "summing the volume of all active market makers' asks" associated with the predetermined securities. Claim 2 recites that the total active bid and ask volumes may be converted to relative bid and ask volumes. If the active bid volume substantially exceeds the active ask volume, this demonstrates a temporary increased demand for the stock. Although future stock price movements can never be predicted with absolute certainty, a higher stock demand is indicative of an upward imbalance in market maker activity. On the other hand, when the active ask volume substantially exceeds the active bid volume, the demand for the stock is temporarily decreased, which indicates a downward imbalance in market maker activity. When the active bid and active ask volumes are comparable, the stock price would tend to be stable. (See, e.g., Application at page 21, line 13 to page 22, line 14.)

<u>The derived indicator, therefore, provides an actual and direct indication of a temporary imbalance in market maker activity</u>. (A similar analysis may be applied to the

derived indicators recited in the other claims.) The limit prices described in Higgins, in contrast, <u>bear no relation</u> to imbalances in market maker activity that could lead to price fluctuations.

The Examiner relies on the following passages of Higgins in rejecting the previous version of the claims: col. 1, lines 51-54; col. 5, lines 6-36; col. 6, line 7; col. 8, line 64; and col. 9, line 7. The cited passages from columns 1, 5 (lines 6-15), 8, and 9 merely describe the conventional use of price limits analyzed above. As demonstrated, such price limits do not indicate any imbalances in market maker activity, but simply are based upon whatever investment strategy a broker or investor may select. (See, e.g., col. 9, lines 3-6: "It will be readily apparent that a price may be tested against upper and/or lower bounds <u>as desired for the investment strategy of the user, or the customers of the user</u>.") The passages at col. 5, lines 16-36 and col. 6, line 7 merely provide that level 1 information may be displayed and updated. There is no disclosure or suggestion in these passages of deriving an indicator of a temporary imbalance in market maker activity.

For at least these reasons, like Anaya, Higgins does not disclose or suggest the claimed features of receiving the claimed financial market data relating to a plurality of securities, nor deriving indicators of temporary imbalances in market maker activity for a security. Because neither Anaya nor Higgins discloses either of these features, a combination of the references certainly does not result in, disclose, or suggest the claimed invention.

III. Arguments As To Specific Claim Groups

The following arguments are directed to more specific features of the various claims. The above section focused on the general absence in the references of the analysis of level 2 data, and the general absence of deriving indicators of temporary imbalances in market maker activity. The analysis to follow focuses on the absence of a disclosure of the specific claimed imbalance indicators, and other features of processing the market data, as recited in the various claims.

As is apparent from the claims, there are method claims and system claims reciting comparable features, and therefore method and system claims are grouped together to efficiently describe the claimed subject matter. Applicant notes that the Examiner's rejections are essentially the same for the method claims and comparable system claims.

A. Independent Claim 210 and Dependent Claims 2-14
Independent Claim 220 and Dependent Claims 95-107

Independent claims 210 and 220 recite that a dynamically updated data stream containing level 2 data is received and transformed to derive an indicator of a temporary imbalance in market maker activity for a security. The transformation of the data specifically includes summing the volume of each active bid and active ask associated with each selected security. The result is the total number of shares that are bid for each security and the total number of shares that are offered for each security, or "the actual volume of bids and asks". (See Application at page 21, lines 13-21 and graphically illustrated in figure 4A under column 96.) Dependent claims 2 and 95 recite that the summed values are converted into relative totals, or percentage of total bid and ask volume that is on the bid side and percentage of total bid and ask volume that is on the ask side.

These results are useful to a trader as an indication of upward or downward imbalance in market maker activity. As explained at page 21, line 22 to page 22, line 10, if there is more bid volume in the aggregate than ask volume in the aggregate, then there may be increased demand for the security. Greater demand typically is indicative of upward imbalance, so the price may rise. The opposite may indicate low demand and that the price may fall. Bid and ask volumes that are close to each other may indicate price stability.

The Examiner states that Higgins discloses the summing of bid and ask volume, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving indicators of temporary imbalances in market

maker activity for a security. Accordingly, there also is no specific disclosure of doing so by summing the active bids and active asks.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 210 and 220, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

> ### B. Independent Claim 211 and Dependent Claims 16-31
> ### Independent Claim 221 and Dependent Claims 109-124

Independent claims 211 and 221 recite that a dynamically updated data stream containing level 2 data is received and transformed to derive a useful indicator of a temporary imbalance in market maker activity for a security. The transformation of the data specifically includes determining whether a bid placed by any of the market makers has a value higher than, the same as, or lower than the previous bid placed by the same market maker. The transformation of the data also includes determining whether an ask placed by any of the market makers has a value higher than, the same as, or lower than the previous ask placed by the same market maker. Essentially, the claimed indicators relate to a change in the bid or ask behavior of a given market maker. This "change" monitoring is described in the application at page 19, lines 8-28 and is graphically illustrated in figure 3 under the change ("Chng") column for market maker lists 84a and 84b, where graphical indicators (plus and minus signs) are used to visually portray the indicators.

The dependent claims build on the "change" indicator recited in the base claims. For example, claims 16-17 and 109-110 recite the deriving of a "buy pressure" and "sell pressure." (See Application at page 22, line 15 to page 23, line 11 and graphically illustrated in figure 4A, column 92.) The buy pressure is the number of market makers that have increased their bid price reduced by the number of market makers that have decreased their bid price. Similarly, sell pressure is the number of market makers that have decreased their ask price reduced by the number of market makers that have increased their ask price. Claims 18 and 111 continue to build on the concept of the

respective base claims by deriving "pressurized bid volume" and "pressurized ask volume." (See Application at page 23, line 12 to page 24, line 16 and graphically illustrated in figure 4A, column 98.) These values combine the buy pressures and the sell pressures with the associated volumes. Thus, the trader may be made aware of large numbers of shares that market makers are collectively trying to acquire or sell, which is indicative of upward or downward imbalances in market maker activity respectively.

Again, the Examiner states that Higgins discloses the tracking of the changes in the bids and asks of the market makers, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving an indicator of a temporary imbalance in market maker activity for a security. Accordingly, there also is no specific disclosure of doing so by tracking changes in the bid and ask behavior of the market makers, as recited in independent claims 211 and 221. For the same reasons, there also is no disclosure or suggestion of deriving the more specific "bid/ask pressure" and "pressurized bid/ask volume" indicators developed in the dependent claims.

Because Higgins does not disclose these claimed features, even if one combined Anaya and Higgins, the subject matter of claims 211 and 221, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

C. Independent Claim 212 and Dependent Claims 33-41
Independent Claim 222 and Dependent Claims 126-134

Independent claims 212 and 222 recite that a dynamically updated data stream containing level 2 data is received and transformed to derive a useful indicator of a temporary imbalance in market maker activity for a security. The transformation of the data specifically includes that, for a selected market maker, the securities for which the market maker has active bids and active asks are identified with an indication of the market maker's bid and ask volumes for those securities. A high volume of bids relative to the ask volume is indicative of increased stock demand, and therefore upward

imbalance in the market maker activity, and vice versa. This "market maker's book" feature is described in the application at page 26, line 12 to page 27, line 6 and is graphically illustrated in figure 4B under column 100.

Again, the Examiner states that Higgins discloses the tracking of such behavior of the market makers, citing the passages identified above in Section II. As shown above, there is no disclosure even generally of deriving an indicator of a temporary imbalance in market maker activity for a security. Accordingly, there also is no specific disclosure of doing so by tracking a market maker's book trends.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 212 and 222, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

D. Independent Claim 213 and Dependent Claims 43-52
Independent Claim 223 and Dependent Claims 136-145

Independent claims 213 and 223 recite that a dynamically updated data stream containing level 2 data is received and transformed to derive a useful indicator of a temporary imbalance in market maker activity for a security. The transformation of the data specifically includes determining the combined bid volume and combined ask volume for each market maker for each selected security. This "market stocks" determination is described in the application at page 27, line 17 to page 29, line 2 and is graphically illustrated in figure 4C under column 108. This information may be useful as an indicator of whether a particular market maker is attempting to purchase or sell large amounts of a particular security, which may be a predictor of price movement.

Again, the Examiner states that Higgins discloses the tracking of combined bid volume and combined ask volume of market makers for selected securities, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving an indicator of a temporary imbalance in market maker activity for a security. Accordingly, there also is no specific disclosure of doing so with a "market stocks" determination.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 213 and 223, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

E.   Independent Claim 214 and Dependent Claims 54-64
Independent Claim 224 and Dependent Claims 147-157

Independent claims 214 and 224 recite that a dynamically updated data stream containing level 2 data is received and transformed to derive a useful indicator of a temporary imbalance in market maker activity for a security. The transformation of the data specifically includes for each market maker, summing the bid volume and ask volume across predetermined securities. Similar to other imbalance indicators, this "market player's" determination is indicative of the market maker's demand (or lack thereof) for the predetermined securities, and therefore imbalances in the market maker activity. This "market player's" determination is described in the application at page 29, line 3 to page 30, line 2 and is graphically illustrated in figure 4D under column 112.

Dependent claims build on the "market player's" determination of the base claims. For example, claims 55 and 148 recite deriving a novel and unobvious parameter referred to by the Applicant as "market maker buy pressure" and "market maker sell pressure." These parameters use the concept of "buy pressure" and "sell pressure" described above and apply the price direction of the bids and asks to the book of the market maker. The market maker buy pressure and market maker sell pressure, and/or the volumetric information from the base claims, can alert a user to how a particular market maker is behaving, which might be indicative of how the market maker believes the market as whole is directed.

Again, the Examiner states that Higgins discloses the tracking of the overall bid and ask behavior of market makers, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving an indicator of a temporary imbalance in market maker activity for a security. Accordingly, there also is no specific disclosure of doing so with a "market player's" determination.

Furthermore, there is no specific disclosure of doing so based on deriving a "market maker buy/sell pressure", as recited in certain dependent claims.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 214 and 224, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

F.   Independent Claim 215 and Dependent Claims 66-77
Independent Claim 225 and Dependent Claims 159-168

Independent claims 215 and 225 recite that a dynamically updated data stream containing both level 1 and level 2 data is received and transformed to derive a useful indicator of a temporary imbalance in market maker activity for a security. The transformation of the data specifically includes determining, on a security by security basis and a market maker by market maker basis, a "bid persistence indicator" and an "ask persistence indicator". These indicators suggest how aggressively a market maker is attempting to buy or sell the corresponding security. The "bid persistence indicator" and "ask persistence indicator" are described in the application at page 30, line 3 to page 33, line 26 and are graphically illustrated in figure 4E under columns 118 and 120 for two different time periods. Dependent claims recite specific ways of calculating the persistence indicators. (See, e.g., claims 67 and 160; 72 and 165.)

Again, the Examiner states that Higgins similarly discloses the tracking of bid and ask persistence indicators. As to these claims, the Examiner cites the following passages of Higgins: col. 4, lines 1-67; col. 7, lines 32-67; col. 9, lines 10-25; col. 10, lines 1-30; and col. 6, lines 24-40. Although extensive, these passages of Higgins may be summarized as disclosing the various ways by which level 1 information is furnished and updated to users. This differs from the bid and ask persistence indicators of the claimed invention

The persistence indicators are measures of the percentage or relative time a market maker has a presence within the inside market. For example, if a bid persistence indicator is high, this means that the market maker's bid is persistently at or

above the current level 1 inside bid. In other words, the market maker is bidding aggressively by bidding at or above the level 1 inside bid, thereby indicating increased demand (upward imbalance) for a security. Conversely, if an ask persistence indicator is high, this means that the market maker's ask is persistently at or below the current level 1 inside ask. In other words, the market maker is selling aggressively by offering the security at an ask price at or below the level 1 inside ask, thereby indicating decreased demand (downward imbalance) for a security.

As shown above in Section II, Higgins is concerned with level 1 information, and not level 2 information in general. For this reason alone, Higgins does not disclose or suggest the claimed invention. More specifically, although the process of Higgins may furnish the level 1 inside bid and inside ask quotes, there is no disclosure or suggestion in Higgins of using level 2 active asks and active bids *at all*, nor additionally to use the level 2 information to derive persistence indicators for a market maker as claimed.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 215 and 225, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

G. Independent Claim 216 and Dependent Claims 79-83
Independent Claim 226 and Dependent Claims 172-176

Independent claims 216 and 226 recite an inventive data filtering technique to increase the predictive accuracy of imbalance indicators. In particular, bids and asks that deviate from the last trade by a threshold percentage are discarded from the data stream. Additional filtering features are recited by various dependent claims. For example, claims 80 and 173 recite that the filtering of the base claims is conducted for plural threshold percentages. The result of the filtering is that outlier bids and asks are removed to concentrate on activity that most closely relates to the inside market. Therefore, a useful result is produced as the data that survives the filter has intrinsic value as a refined data stream. This level 2 data filtering technique is described at page 15, line 17 to page 16, line 23.

These claims differ from the other claim groupings insofar as they do not specifically recite deriving an indicator of a temporary imbalance in market maker activity. The Examiner states that the following passages of Anaya disclose the claimed filtering of level 2 data: col. 4, lines 37-42; col. 5, line 64 to col. 6, line 15; col. 6, lines 39-42; col. 21, lines 55 -56; and Fig. 4.

Referring to the referenced passages of Anaya, col. 4, lines 37-42 is merely a general description of Fig. 1A as showing a market monitoring system that receives a flow of incoming messages containing data on market events. Col. 5, line 64 to col. 6, line 15 describes how incoming data received from market and/or news sources is monitored for errors and used to generate the internal alert conditions. Col. 6, lines 39-42 merely makes reference to the proprietary NASDAQ Quote Data Service (NQDS) for formatting market related messages. Col. 21, lines 55-56 is merely a definition of market makers, and Fig. 4 is simply a depiction of a "common format of the market event objects", i.e., a sample NQDS message. (See Col. 2, lines 40-41; col. 6, lines 39-42.)

This review demonstrates that none of these passages of Anaya deals with filtering data. Indeed, there is no suggestion in Anaya that any data is discarded from the data stream. In addition, as shown above in Section II, the process of Anaya merely provides alerts to internal workstations of the NASDQ data analysts, and the relay of certain alerts to data originators for verification and correction. Anaya does not disclose providing level 2 information to the market makers. Accordingly, Anaya does not disclose level 2 filtering generally, and therefore also does not disclose filtering specifically by discarding bids or asks that deviate from the last trade price by a threshold amount.

Because Anaya does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 216 and 226, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

Note also that the filtering techniques set forth in this claim grouping are recited (at least partly) by dependent claims that flow from the various independent claims

grouped and discussed in other sections.[2] As such, those dependent claims recite patentable subject matter for the additional reason that the references do not disclose or suggest the claimed level 2 filtering.

H.   Independent Claim 217 and Dependent Claims 85-89
Independent Claim 227 and Dependent Claims 178-182

Independent claims 217 and 227 recite that a dynamically updated data stream of market data relating to at least a predetermined set of securities is received. For each security from the predetermined set of securities, there is derived a "set of indicators" indicative of a temporary imbalance in market maker activity for the security. The claims further recite, for a user selected parameter, dynamically sorting a displayed order of the set of indicators. Therefore, a useful result is produced as the imbalance indicating indicators are displayed in a meaningful order, even as the indicators change based on incoming data from the financial market. This dynamic sorting is described in the application, for example, at page 25, lines 3-23.

Again, the Examiner states that Higgins discloses the deriving of similar statistics, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving such an indicator. Accordingly, there also is no specific disclosure of dynamically sorting *a set* of such indicators.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 217 and 227, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

I.   Independent Claims 218 and 228

Independent claims 218 and 228 recite receiving a dynamically updated data stream containing level 2 information relating to at least a predetermined set of

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[2]   See claims 8, 9, 25, 26, 36, 37, 46, 47, 58, 59, 70, 71, 86, 87, 92, 93, 101, 102, 118, 119, 129, 130, 139, 140, 151, 152, 163, 164, 179, 180, 185, 186, 201, 202.

securities. For each security from the predetermined set of securities, there is derived a "set of indicators" indicative of a temporary imbalance in market maker activity for the security. Like claims 217 and 227, claims 218 and 228 are directed to deriving multiple indicators. The claims further recite charting a derived indicator over a prescribed time period. This deriving and charting are, in and of themselves, useful to a user to assess conditions for buying or selling a security.

Again, the Examiner states that Higgins discloses the deriving of similar indicators, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving an indicator indicative of a temporary imbalance in market maker activity for the security. Accordingly, there also is no specific disclosure of charting *a set* of such indicators.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims 218 and 228 would not result. These claims, therefore, recite patentable subject matter.

J. Independent Claim 219 and Dependent Claims 92-93 Independent Claim 229 and Dependent Claims 185-186

Independent claims 219 and 229 recite that a data stream of level 2 information is received, from which is derived a useful indicator of a temporary imbalance in market maker activity for a security. These claims are directed to assisting the trader in analyzing market depth by grouping the bids and asks respectively by price. For the bids, the number of bids in each group and the volume of those bids are displayed. Similarly, for the asks, the number of asks in each group and the volume of those asks are displayed. This information may give the trader a degree of understanding as to how aggressively market makers are attempting to buy or sell the corresponding security, which may be an indicator of price movement. Exemplary results of the claimed subject matter are illustrated in figure 3 as bar charts 86. The associated description may be found in the application at page 17, line 29 to page 18, line 15.

Again, the Examiner states that Higgins discloses these claimed features, citing the passages identified above in Section II. As shown above, however, Higgins does

not disclose deriving an indicator of a temporary imbalance in market maker activity for a security. In addition, the Examiner states that Anaya discloses grouping bids and asks respectively by price. As shown above, however, the process of Anaya does not disclose providing or analyzing level 2 data, and therefore there is no disclosure of grouping the level 2 bids and asks.

Because the combination of Higgins and Anaya does not disclose the claimed features, claims 219 and 229, and the related dependent claims, recite patentable subject matter.

K. Amended Independent Claims 187, 208, and 209, And Dependent Claims 188-205

As amended, independent claims 187, 208, and 209 recite receiving of a data stream containing bids and asks for securities traded on at least one common exchange, and deriving an indicator for each of the plurality of securities indicative of a temporary imbalance in market maker activity for a security. These claims, therefore, are directed to Applicant's approach of simultaneously analyzing up to all market maker activity for plural securities. These claims further recite that the derived indicator is a function of inter-related collective and coactive behavior of a plurality of market makers. As a result, the claims generate a useful output. That is, the indicators are indicative of imbalances that a user may use to asses whether to buy or sell a security.

Again, the Examiner states that Higgins discloses the tracking of information relating to a plurality of securities to derive a similar indicator, citing the passages identified above in Section II. As shown above, however, there is no disclosure even generally of deriving an indicator indicative of a temporary imbalance in market maker activity for a security. Accordingly, there also is no specific disclosure of doing so as a function of inter-related collective and coactive behavior of a plurality of market makers.

Because Higgins does not disclose the claimed features, even if one combined Anaya and Higgins, the subject matter of claims amended 187, 208, and 209, and the related dependent claims, would not result. These claims, therefore, recite patentable subject matter.

Furthermore, many of the dependent claims in this grouping build upon the concept of generating a useful output in the form of a statistic that is a function of inter-related and coactive behavior of a plurality of market makers. Specifically, many of these dependent claims recite deriving specific indicators of imbalances in market maker activity comparable to those recited in the independent claims of the other groupings. The dependent claims in this grouping, therefore, recite patentable subject matter for the same reasons as set forth in previous sections.

IV. Conclusion

In light of the foregoing, numerous claim features are not disclosed or suggested by either or both of Anaya and Higgins. A combination of Anaya and Higgins, therefore, does not result in, disclose, or suggest the claimed invention. Accordingly, claims 2-14, 16-31, 33-41, 43-52, 54-64, 66-77, 79-83, 85-89, 92-93, 95-107, 109-124, 126-134, 136-145, 147-157, 159-170, 172-176, 179-182, 185-205, and 208- 229, are not obvious over Anaya in view of Higgins pursuant to 35 U.S.C. § 103(a).

For at least these reasons, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0988, our Order No. CUTLP0102US.

Respectfully submitted,
RENNER, OTTO, BOISSELLE & SKLAR, LLP

By   /MDavidGalin/
     M. David Galin; Reg. No. 41,767

1621 Euclid Avenue
Nineteenth Floor
Cleveland, Ohio 44115
Telephone: (216) 621-1113
Facsimile: (216) 621-6165